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Sustainability Problems, FALL 2014

Cumulative Exam (contributes 20% to your final grade)

Answer six (6) of the following questions in essay form (750-1,000 words per question). Post your exam to the WIKI by 11:59pm on December 5th.

2) Describe how science can be a sustainability problem; referencing at least four examples from films you watched this semester.

Science can be a sustainability problem because it causes many advances which meet the extreme demand for resources. This is seen in a diverse array of resources. Four that will be discussed are natural gas, industrial farming, genetically modified seeds, and industrial fishing.

Natural gas is becoming a more critical resource as researchers seek for energy alternatives. When it burns, natural gas is cleaner and more efficient to use in engines. Though, the process to retrieve natural gas is not as environmentally friendly. The major process used is hydrofracking which uses many harmful chemicals and large amounts of water to break strong sheets of rock to release the gas. In the movie *Gasland*, examples of this hydrofracking technology are criticized, and makes a very convincing argument against hydrofracking. Technological advances have allowed for hydrofracking to exist and is causing many sustainability problems like toxic wastewater, contaminated drinking water, and legal issues.

Industrial farming is a notable feature of American farms. In the U.S. there are large areas of land that are devoted to farming. Large industrial farms are able to be maintained by the growing demand for food among Americans. In the movie *Fresh*, claims are made against industrial farming and suggest the push for more local, organic, sustainable farms. Industrial farming was able to happen after advances in farming equipment. Farmers today are able to produce exponentially more food (crops and animals) than before. Environmental sustainability needs to be considered because large expanses of land are not meant to grow the same plant. This can also cause the soil to lack nutrients.

Farming issues are also seen when using genetically modified organism seeds (GMOs). Most produce sold in grocery stores are GMOs because they are genetically grown to have preservatives and can keep longer. They are also larger allowing for people to have more. In the U.S. there is an infrastructure to grow GMOs, using special fertilizers, pesticides, and farming equipment. In the movie *Bitter Seeds*, Indian farmers with small plots of land are forced to use GMO seeds to grow their crops. These farmers though do not have the proper equipment to grow the seeds. It is causing famine in rural areas of India. This is a major sustainability issue. Not only do GMOs cause for health concerns in the U.S. while also promoting industrial farming, but is also detrimental to whole areas of India.

Becoming more well-known is industrial fishing. There are fishing boats that are using technology to catch the most amount of fish in the least amount of time. In the film *End of the Line*, concerns of industrial fishing are addressed. One major concern is that more fish are being caught but not all the fish are consumed. There are also other animals being caught unintentionally in large nets and other fishing technologies. This addresses many environmental sustainability problems and future fish populations.

Science develops human desire to achieve more. Advances in science and technology make daily life easier but in some cases is costing humans more by impacting the environment. With resources that are currently being acquired in unsustainable ways, there are more sustainable means and in using these would lower the risk of completely depleting the resource.

4) Discuss the relationship between social networks (Web and Internet) and sustainability. Include problems and solutions.

Social networks such as facebook, twitter, Instagram and many others have taken over the internet and are apparent in daily life. With these public platforms available to society, information can pass quickly and become readily available. When it comes to sustainability, social networking has helped spread awareness of current events and organizations which focus on sustainability. Although it spreads awareness, there are negative aspects of the relationship between social networking and sustainability.

One negative aspect is the rate at which information is spread on social networking sites. The internet has become a place for fast pace news and large amounts of people will be informed in an extremely short amount of time. When news arises of a sustainability event, the event can be relayed too quickly and people either lose sight of the original issue or fail to be notified of the entire story. This fast paced information relay can also cause competition between groups to post their story the soonest. In doing this, a group might be lacking important information and can miss inform many social networking users.

A problem of sustainability and social networking is being able to make things visually appealing. Social networking has taken a marketing stance on promoting organizations and events. People are intrigued by a shocking article title or daring photograph that surfaces to the top of their facebook status feed. It draws people in to read more about the event with the hopes that they will repost it to their friends. Everything in social media is made to attract the user and in hopes that they will share it. If a group can make an interesting enough story or an infographic that is visually appealing, then there is a more likely chance it will be read and then passed on. For sustainability, groups have to advertise sustainability for people to gain interest, but in turn, may detract from the issues being addressed. Thus, it becomes less of an issue with information content but selling sustainability events or issues to a broad crowd.

Another negative aspect of sustainability and social networking is "lots of talk but no action." With many social networking sites, there are ways to "like" or "vote up" status updates, photos, organizations and other information. When doing this, people are promoting that status, photo, or organization that posted something. That person is now a follower of the cause but that does not make them active members. There are people who will like something because it aligns with their morals and values, but some other people will do it because it is "trending" or sponsored by a well-known company. In relation to this, social networking gives a false number of people who do, (actually) promote an organization's cause. Therefore, a "like" or "retweet" does not mean you will save the world but it will make you seem like you might.

In all, I believe social networking has more benefits to sustainability than hindrances. The internet is able to spread awareness of current, global sustainability issues which people have become active members of who may not have otherwise. A prime example of a beneficial relationship between social networking and sustainability is the Climate March that happened in September 2014. Millions of people gathered in New York City to promote a stance of current climate concerns. While at the march, supporters were asked to submit photos to the Climate March facebook group and tweet about things happening at the march with a certain hashtag. After the march, many facebook users who were not at the march were able to see the event through photos and gain a better understanding of what the march was for and who cared for the cause.

Social networking also allows smaller sustainable organizations a basic platform to enter society with. Anyone who is a user of a social networking site has easy, readily available access to information and updates posted by their favorite cause or organization to support. In reference to the problems addressed, many of them are faced by alternate forms of media. What makes social networking different

is how new, popular, and integrated in society that these sites have become. Overall though, these issues of promoting sustainability news, events, organizations, etc., are faced by newspapers, television, radio and so forth.

6) Describe a film idea intended to educate a particular audience about a sustainability problem. Describe the audience you intend to reach, and its characteristics (biases, ignorance, expertise, etc); the aim of the film; its narrative structure and its content.

A current sustainability issue within the U.S. is the approval of medicines and the pharmaceutical lobby within the government. The seriousness of this is worth being addressed in a film.

A renowned archeologist is studying newly discovered Mayan ruins in the Yucatan peninsula. During one day of excavation, she faints. When she awakes she has an extremely high fever and is too remote of a location to get access to a hospital in time. One member of the archeological dig is familiar with some of the local tribes. The member leaves and returns with a young woman who lives in the tribe. She sees the condition of the scientist and retrieves a handful of leaves and organic serums which she brought in the satchel. Using these materials, the woman creates a chewable remedy for the fever. After a few days the archeologist is saved. Amazed by the effectiveness of the organic products, she seeks out for the young woman who saved her. She arrives in the village and sees the young woman. The archeologist proposes to the young woman that her remedy could become a cure for others who face intensive fevers around the world. The woman shares the ingredients and process of making the cure.

Several months later, the archeologist has returned to the U.S. and has been conducting research about the effectiveness of the cure and how it compares to similar drugs. Through multiple tests, her cure is exceeding other medications for effectiveness. She has been consulting fellow scientists to confirm her cure and they agree that it is an amazing drug. She would like to further advance this drug and create a medication to be used by others.

The archeologist prepares a presentation to give in front of the U.S. government. Before she is to present, a well-dressed, middle aged man approaches her and offers her money to not present. This man works for a medical lobby group and he does not want her to promote her drug. The archeologist is strong willed and does not accept the money. She provides to give her presentation. After the presentation has concluded, the government makes a ruling that her cannot be administered due to "already sufficient medicines." She is appalled that something so simple, cost efficient, and highly effective would not be considered.

The audience I intend for this film is a mature audience who are interested in flaws in government structure. The hope is for this film to give some insight to other cultures facing medical problems and how the U.S. government handles allowing new medications to be approved. The film is made in more of a movie format. There is no narrator. All concepts come from the interactions made by the main character.

This film addresses the medical lobby in the government and demonstrates how difficult it can be to promote a medication into the U.S. Like most sustainability issue, much of this relates to money, and especially within the government.

9) Identify five (5) the college students should take to advance sustainability. Include concrete examples to illustrate your ideas.

1. Be involved in sustainability projects within their major.
2. Earth Week around the time of Earth Day.

3. Incentivize students to work with B-Corps.
4. Create campus wide public forums in order to share opinions and spread awareness.
5. Take multiple sustainability focused classes and urge students to pursue a minor in sustainability.

One way college students could become more active in sustainability is by organizing sustainability projects within their major. Most majors involve large final projects or a thesis. To promote sustainability, this final project could be focused around a sustainable issue. For students who would prefer to not focus their project about sustainability, they could devote one section of their project to how it relates to sustainability; because as seen through the matrix, sustainability is multifaceted. To have a project like this, it would have to be integrated into the requirements for the major. Perhaps these students would have to interact with a sustainability advisor to discuss their project topic. By having a student do this, they are researching and learning more about sustainability through a specific topic while also making connections to other areas of sustainability.

A second proposal for college students to become more active in sustainability is to host Earth Week around Earth Day. Rensselaer Polytechnic Institute hosts an Earth Week where nationally renowned speakers come and give presentations on current environmental issues seen throughout the world. These presentations are free to go to and is encouraged for students to attend. By doing this, students gain a more appreciation for environmental events happening and my stimulate interest to research more or become involved in resolving these events. If others campuses host an Earth Week like that at RPI, students would be more involved with environmental issues and sustainability as a whole.

Another suggestion for college students to become more active in sustainability is to incentivize students to work with B Corps. B Corps are taking an active stance on sustainability issues by centralizing their corporation to solve certain sensibility issues. By having college students work with these corporations, students can gain a better understanding of how their knowledge can be used to help benefit others or the environment within their work. This would not only benefit the student but also promote the B Corp as being an active member in the academic world. B Corps have much to offer and college students should take advantage of these opportunities.

A fourth action college students could take in order to promote sustainability is hosting open forums centered around sustainability issues. This engages students to critically think and discuss sustainability issues. Each forum could be focused on a different aspect of sustainability, giving verity for people to discuss about. The scope of the forum topics can be local or international, because when it comes to sustainability problems, if it is a world problem it is inherently your problem.

A fifth and final suggestion for college students to become more active in sustainability is to take multiple sustainability classes and make a minor. RPI is not the only school that offers a sustainability minor. Many schools are moving toward this in order to promote more sustainable thinking by their students. By having a minor in sustainability, students are able to identify themselves as a person knowledgeable in sustainable practices or at least have an understanding of current issues the world faces. Having the minor makes the student more reputable and shows depth in their character.

As seen from the short list above, this is only five suggestions for a college student to become more active in sustainability, mostly through education, but there are many more which were not mentioned here. Sustainability takes many shapes and forms, finding an avenue to pursue it can happen anywhere.

11) Write two exam questions that creatively test students' analytic sophistication about sustainability. Answer one of these questions.

Identify an indigenous culture which has been exempt from environmental legislation in order to maintain their cultural values. What effects has this caused in the local area? Is it more or less environmentally sustainable?

In 2011, U.S. Congress voted for yes to consider pizza a vegetable in order to keep it in school lunches. The initial bill was proposed by the Agriculture Department to have healthier lunches; this did not include pizza. The vote was made in order to support companies that produce frozen pizzas.

Based on this event, what can you infer about the relationship between government and corporations? Is this relationship sustainable for the United States?

The government and corporations depend very heavily on each other. In this case, it is evident that the government is wanting to promote the frozen pizza industry. The argument could be made that is this to help promote jobs and benefit society, but it seems to be more out of greed. This is obvious because if the students were to have healthier lunches, the frozen pizza companies would be out of business. Recall though that the Agriculture Department made the proposal for healthier lunches. If the government sides with them, they are going to have less money. There are numerous cases like this, but this is one which most of society are still scratching their heads about.

From my perspective, it seems that with many cases between the government and corporations, the government is intimidated by the cooperation. The ties between the two are convoluted and based on money, making them extremely hard to break or resist. Public debates, forums and other junctions where information is shared, there companies will release information to make themselves sound better and more beneficial than what is actually happening. One example which deals with sustainability is hydrofracking companies. Much of the research they have released is used more to promote themselves and to make hydrofracking seem valuable, when in actually many are suffering because of the industry. Companies will present this information to the government to gain approval and then continue their practices. It is very evident that governments hold special standards for companies because of their economic value so much that they ignore the skewed data presented.

This is an unsustainable relationship for the United States. Companies should not have this kind of authority or influence within national government. The government is meant represent the people and make the best decisions for the people. With cases like these, I seems as if Americans come last when passing bills and legislation. Mentioned earlier, the relationship between companies and government has been utilized for decades, but if more cases like the pizza incident immerge in the future, Americans will question the role of the government and seek change. In order to change this, it is going to have to come from the people through protests and other forward actions against the government. In all, the relationship between governments and corporations is unsustainable and is only going to get worse unless Americans react in a constructive manner.

12) What attitudes and cultural constructs in the United States do environmental educators need to work against? Briefly describe at least one activity for k-12 students that would work against these attitudes and cultural constructs. Reference at least two films.

There are many attitudes and cultural constructs which are imbedded in modern American lifestyle. Students need to understand that some of these attitudes and cultural constructs are

unsustainable. Educators should promote more sustainable practices to their students by hosting activities which engage the students to understand sustainability in their life.

One cultural construct which has been discussed many times is mono culture. Industrial farming has led to mono culture on large farms and is a major sustainability issue. One documentary that identifies this issue is *Fresh*. In the film, many smaller, local farmer's are interviewed and asked to discuss their farm and also their thoughts on industrial farming with monoculture. The consensus is that mono culture is unnatural and that different varieties of plants grow together. With the amount of food produced from industrial farming, people are having a difficult time locating where their food was grown.

An activity an environmental educator could do with elementary school kids to identify where their food comes from is to have them take a field trip to a local farm or orchard and then compare those food to ones from the grocery store. For the past 25 years, my elementary school has taken first grade students to an apple orchard to understand how apples are grown and used to make delicious cider. This gives students the opportunity to see local farming at it's finest. To compare this experience, students would then go to a grocery store and identify the apples there. What they will notice is far distance the apple has traveled to be sold in their grocery store. Hopefully this would lead them to question why apples from farther distances are being sold when local apples are not sold in the neighborhood grocery store. The final proration of this activity is a taste test. Students would be given two apples, one from the local orchard and another from the grocery store. The students must guess which is which. By doing this, students can taste the freshness of the local apple over the one from the grocery store. Overall, this activity will give students insight to mono culture, industrial farming, and local farming practices.

Another cultural construct that an educator could emphasis more to students is consumerism. Americans are driven by getting the most for their money. This has led to people to buy more than they need because it was a good price. To meet this demand, stores stock their shelves with more products. Part of this consumerism has been fueled from advertising. In the film *The Persuaders*, the process behind marketing and advertising a product is explained. The amount of deliberation which goes into selling one product is incredible. Companies use these advertising strategies to sell quantities of their product. The more they can sell, the more money they can make. This has led people to buying ridiculous amounts of products and heightened consumerism.

An activity and educator could do with students is to test the strength of products. For example, a group of students is given a cheap plastic bowl from a low price focused store (Dollar Tree, Walmart, etc.) and a very nice plastic bowl from a well-known cook ware company. Using various destructive tools, such as a hammer, students would try to break both bowls. The idea is that the cheap plastic bowl would break easier, identifying that it was made quickly, poorly, and is now disposable. Ideally, the nicer plastic bowl would not break as easily demonstrating that it was made to be durable using quality materials and ingenuity. The comparison between the two bowls would lead to discussion about consumerism and how people are purchasing the cheaper bowls to spend less money and get more bowls for the price. In order to deter students from consumerism, seeing the quality of the nice bowl would led them to spend more money and buy more quality items than cheap ones.